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EXAMINER	
HANNETT, JAMES M	

ART UNIT	PAPER NUMBER
2612	

DATE MAILED: 06/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/842,771	TAKEMOTO, FUMITO	
	Examiner	Art Unit	
	James M. Hannett	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 February 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 April 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 2/22/2005 have been fully considered but they are not persuasive. The applicant argues that Nishigaki is silent regarding any relationship between a look-up table and the tone conversion processing.

The examiner disagrees with the applicant. Nishigaki et al depicts in Figure 2 the processing device performs color correction processing (2006) prior to gamma correction processing (2008). Furthermore, Nishigaki et al depicts in Figure 3 and teaches on Column 7, lines 60-65 that the gamma correction portion (2008) corrects a tone curve of the image data. Therefore, it is viewed by the examiner that the gamma correction block (2008) performs a tone conversion. Furthermore, because the processing block (2008) follows the color processing block (2007), It is viewed by the examiner that the tone correction in (2008) is performed in accordance with processing which is carried out in accordance with the LUT used in processing block (2007).

The applicant argues that Oku only discloses carrying out color correction processing considering properties of an image recording medium or an image recording apparatus. And can not be relied upon to teach the step of generating a three-dimensional look-up table for a model of the digital camera.

The examiner asserts that Oku et al teaches on Column 2, lines 37-63 the use of an image processing apparatus that uses three-dimensional look-up tables to correct color in digital images. Furthermore, Oku et al teaches on Column 1, lines 17-20 that it is advantageous to perform color correction based on the characteristics of the image recording apparatus. The

examiner views the "correction based on the characteristics of the image recording apparatus" as correcting the signal based on the model of the digital camera. Furthermore, because the color correction is performed with the use of a three-dimensional lookup table, the values in the look up table will be set in accordance with the characteristics of the image recording apparatus.

The applicant argues that in Nishigaki, it is already known that the number of pixels of the image represented by the image signal is larger than the number of lattice points. Thus it is not necessary to compare the number of pixels in the image represented by the image data with the number of lattice points in the three dimensional look up table.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., compare the number of pixels) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

The examiner points out that the applicant claims, "comparing a number of pixels in the image with the number of lattice points". The examiner has viewed this limitation broadly, and believes that this limitation can be met by showing that Nishigaki compares a number of pixels (a group of pixels) to the number of lattice points.

The applicant then argues that based the above feature, Nishigaki cannot teach or suggest obtaining the image data by converting the image data according to LUT in a case where the number of pixels is larger than the number of lattice points, and carrying out tone conversion processing and color correction processing in a case where the number of pixels is equal to or smaller than the number of lattice points.

The examiner asserts that Nishigaki et al teaches on Column 8, Lines 13-15 and on Column 8, Line 43 the step of generating the three-dimensional look-up table being a step of generating the three-dimensional look-up table in the case where the number of the pixels (M) is larger than the number of the lattice points (N). Furthermore, Nishigaki et al teaches on Column 6, Lines 3-16 an image processing method for obtaining processed image data by carrying out tone conversion processing (2005 and 2008) and color correction processing (2007) on image data obtained by a digital camera. Nishigaki et al teaches that the number of input signals (M) is larger than the number of lattice points (N) and does not teach that the number of lattice points can be equal to the number of input signals. Nishigaki et al teaches that this is done to save memory space.

Oku et al teaches on Column 2, Lines 6-15 that it was well known to use three-dimensional look-up tables where the input color signals and the output color signals are each expressed with 8-bits, if a large memory size is practical to use. Therefore, the number of input signals is equal to the number of lattice points.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to carrying out the tone conversion processing (2005 and 2008) and the color correction processing (2007) on each of the pixels (M) in the image represented by the image data (input signal) in the case where the number of the pixels (M) is equal to the number of the lattice points.

The applicant argues that although Oku does teach that the image signal and the look-up table can be designed to both be expressed as eight bit date, the applicant asserts that Oku

teaches that this process would require a large memory and would therefore by uneconomical and lead to poor efficiency of the color adjusting.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Although Oku teaches that using a large memory can be uneconomical and lead to poor efficiency of the color adjusting, Oku teaches on Column 2, Lines 6-15 that using such a look-up table can accurately correct the relation of the color correction formula. Therefore, although the process of adding such a large memory increases the price of the digital camera, the camera is made superior. Therefore, the examiner asserts that there is proper motivation to combine the references.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1: Claims 1, 7, and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by USPN 6,590,678 Nishigaki et al.

2: As for Claim 1, Nishigaki et al teaches on Column 6, Lines 3-16 an image processing method for obtaining processed image data by carrying out tone conversion processing (2005 and 2008) and color correction processing (2007) on image data obtained by a digital camera. Nishigaki et al teaches on Column 7, Lines 65 – Column 8, Line 15 generating a three-dimensional look-up table (LUT) for carrying out the color correction processing (2007) on the image data; Nishigaki et al teaches on Column 9, Lines 4-18 obtaining the processed image data (output signal) by converting the image data (input signal) according to the three-dimensional look-up table. Nishigaki et al depicts in Figure 2 the processing device performs color correction processing (2006) prior to gamma correction processing (2008). Furthermore, Nishigaki et al depicts in Figure 3 and teaches on Column 7, lines 60-65 that the gamma correction portion (2008) corrects a tone curve of the image data. Therefore, it is viewed by the examiner that the gamma correction block (2008) performs a tone conversion. Furthermore, because the processing block (2008) follows the color processing block (2007), It is viewed by the examiner that the tone correction in (2008) is performed in accordance with processing which is carried out in accordance with the LUT used in processing block (2007).

3: As for Claim 7, Claim 7 is rejected for reasons discussed related to Claim 1, since Claim 1 is substantively equivalent to Claim 7.

4: As for Claim 13, Claim 13 is rejected for reasons discussed related to Claim 1, since Claim 1 is substantively equivalent to Claim 13.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5: Claims 3, 9, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,590,678 Nishigaki et al in view of USPN 5,974,173 Kimura.

6: As for Claim 3, Nishigaki et al teaches the use of an image processing apparatus that performs tone and color correction by using a three-dimensional look-up table. However, Nishigaki et al does not teach the step of setting a number of lattice points in the three-dimensional look-up table according to a number of bits of the image data.

Kimura teaches on Column 4, Lines 6-12 and Column 4, Lines 38-51 and Column 9, Lines 45-52 and Column 10, Lines 1-2 and on Column 3, lines 28-62 that it is advantageous when using three-dimensional look-up table that perform color and tone correction to reduce the bit length of the look-up table in order to reduce memory size. Therefore, Kimura teaches setting the number of lattice points in the three-dimensional look-up table according to the number of bits of the image data

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to reduce the bit length of the look-up table in Nishigaki et al according to the number of bits of the image data as taught by Kimura in order to reduce memory size.

7: As for Claim 9, Claim 9 is rejected for reasons discussed related to Claim 3, since Claim 3 is substantively equivalent to Claim 9.

8: As for Claim 15, Claim 15 is rejected for reasons discussed related to Claim 3, since Claim 3 is substantively equivalent to Claim 15.

9: Claims 2, 4, 5, 8, 10, 11, 14, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,590,678 Nishigaki et al in view of 5,489,996 Oku et al.

10: In regards to Claim 2, Nishigaki et al teaches the use of an image processing apparatus that uses three-dimensional look-up tables to correct tone and color in digital images. However, Nishigaki et al does not teach the step of generating the three-dimensional look-up table for a model of a digital camera.

Oku et al teaches on Column 1, lines 17-20 and on Column 2, lines 37-63 the use of an image processing apparatus that uses three-dimensional look-up tables to correct tone and color in digital images. Oku et al further teaches that it is advantageous to perform the color correction in consideration of the color reproduction characteristics of the image recording apparatus in order to record an image with good color reproduction.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to perform the color correction and tone correction process of Nishigaki et al in consideration of the color reproduction characteristics of the image recording apparatus as taught by Oku et al in order to record an image with good color reproduction.

11: In regards to Claim 4, Nishigaki et al teaches on Column 8, Lines 7-26 comparing a number of pixels (M) in an image represented by the image data with the number of lattice points (N) in the three-dimensional look-up table. Nishigaki et al teaches on Column 8, Lines 13-15 and on Column 8, Line 43 the step of generating the three-dimensional look-up table being a step of generating the three-dimensional look-up table in the case where the number of the pixels (M) is larger than the number of the lattice points (N), Nishigaki et al teaches that the number of input signals is greater than the number of lattice points. Nishigaki et al teaches on Column 9, Lines 4-

18 the step of obtaining the processed image data (output signal) being a step of obtaining the processed image data by converting the image data (input image data) according to the three-dimensional look-up table (LUT) in the case where the number of the pixels (M) is larger than the number of the lattice points (N). Nishigaki et al teaches that the number of input signals (M) is larger than the number of lattice points (N) and does not teach that the number of lattice points can be equal to the number of input signals. Nishigaki et al teaches that this is done to save memory space.

Oku et al teaches on Column 2, Lines 6-15 that it was well known to use three-dimensional look-up tables where the input color signals and the output color signals are each expressed with 8-bits, if a large memory size is practical to use. Therefore, the number of input signals is equal to the number of lattice points.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to carrying out the tone conversion processing (2005 and 2008) and the color correction processing (2007) on each of the pixels (M) in the image represented by the image data (input signal) in the case where the number of the pixels (M) is equal to the number of the lattice points.

12: As for Claim 5, Nishigaki et al teaches on Column 6, Lines 3-16 an image processing method for obtaining processed image data by carrying out tone conversion processing (2005 and 2008) and color correction processing (2007) on image data obtained by a digital camera. Nishigaki et al teaches on Column 8, Lines 7-26 comparing a number of lattice points (N) in a three-dimensional look-up table (LUT) used for carrying out the tone conversion processing (2005 and 2008) and the color correction processing (2007) on the image data with a number

pixels (M) in an image represented by the image data; Nishigaki et al teaches on Column 8, Lines 13-15 and on Column 8, Line 43 the step of generating the three-dimensional look-up table, Nishigaki et al teaches on Column 9, Lines 4-18 the step of obtaining the processed image data (output signal) being a step of obtaining the processed image data by converting the image data (input image data) according to the three-dimensional look-up table (LUT) in the case where the number of the pixels (M) is larger than the number of the lattice points (N). Nishigaki et al teaches that the number of input signals (M) is larger than the number of lattice points (N) and does not teach that the number of lattice points can be equal to the number of input signals. Nishigaki et al teaches that this is done to save memory space. Furthermore, Nishigaki et al depicts in Figure 3 and teaches on Column 7, lines 60-65 that the gamma correction portion (2008) corrects a tone curve of the image data. Therefore, it is viewed by the examiner that the gamma correction block (2008) performs a tone conversion. Furthermore, because the processing block (2008) follows the color processing block (2007), It is viewed by the examiner that the tone correction in (2008) is performed in accordance with processing which is carried out in accordance with the LUT used in processing block (2007).

Oku et al teaches on Column 2, Lines 6-15 that it was well known to use three-dimensional look-up tables where the input color signals and the output color signals are each expressed with 8-bits, if a large memory size is practical to use. Therefore, the number of input signals is equal to the number of lattice points.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to carrying out the tone conversion processing (2005 and 2008) and the color correction processing (2007) on each of the pixels (M) in the image represented by the

image data (input signal) in the case where the number of the pixels (M) is equal to the number of the lattice points.

13: In regards to Claim 8, Claim 8 is rejected for reasons discussed related to Claim 2, since Claim 2 is substantively equivalent to Claim 8.

14: In regards to Claim 10, Claim 10 is rejected for reasons discussed related to Claim 4, since Claim 4 is substantively equivalent to Claim 10.

15: As for Claim 11, Nishigaki et al teaches on Column 6, Lines 3-16 an image processing apparatus for obtaining processed image data by carrying out tone conversion processing (2005 and 2008) and color correction processing (2007) on image data. Nishigaki et al teaches on Column 7, Lines 65 – Column 8, Line 15 and on Column 8, Lines 7-26 three-dimensional look-up table generating means for comparing the number of lattice points (N) in a three-dimensional look-up table used for the tone conversion processing (2005 and 2008) and the color correction processing (2007) on the image data with the number of pixels (M) in an image represented by the image data. Nishigaki et al teaches on Column 8, Lines 13-15 and on Column 8, Line 43 generating the three-dimensional look-up table (LUT) in the case where the number of the pixels (M) is larger than the number of the lattice points (N); Nishigaki et al teaches on Column 9, Lines 4-18 processing means for obtaining the processed image data (output signal) by converting the image data (input signal) according to the three-dimensional look-up table (LUT) in the case where the number of the pixels (M) is larger than the number of the lattice points (N). Nishigaki et al teaches that the number of input signals (M) is larger than the number of lattice points (N) and does not teach that the number of lattice points can be equal to the number of input signals. Nishigaki et al teaches that this is done to save memory space. Furthermore,

Nishigaki et al depicts in Figure 3 and teaches on Column 7, lines 60-65 that the gamma correction portion (2008) corrects a tone curve of the image data. Therefore, it is viewed by the examiner that the gamma correction block (2008) performs a tone conversion. Furthermore, because the processing block (2008) follows the color processing block (2007), It is viewed by the examiner that the tone correction in (2008) is performed in accordance with processing which is carried out in accordance with the LUT used in processing block (2007).

Oku et al teaches on Column 2, Lines 6-15 that it was well known to use three-dimensional look-up tables where the input color signals and the output color signals are each expressed with 8-bits, if a large memory size is practical to use. Therefore, the number of input signals is equal to the number of lattice points.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to carrying out the tone conversion processing (2005 and 2008) and the color correction processing (2007) on each of the pixels (M) in the image represented by the image data (input signal) in the case where the number of the pixels (M) is equal to the number of the lattice points.

16: In regards to Claim 14, Claim 14 is rejected for reasons discussed related to Claim 2, since Claim 2 is substantively equivalent to Claim 14.

17: In regards to Claim 16, Claim 16 is rejected for reasons discussed related to Claim 4, since Claim 4 is substantively equivalent to Claim 16.

18: As for Claim 17, Claim 17 is rejected for reasons discussed related to Claim 5, since Claim 5 is substantively equivalent to Claim 17.

19: Claims 6, 12 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,590,678 Nishigaki et al in view of 5,489,996 Oku et al in view of USPN 5,974,173 Kimura.

20: In regards to Claim 6, Nishigaki et al in view of Oku et al teaches the use of an image processing apparatus that performs tone and color correction by using a three-dimensional look-up table. However, Nishigaki et al does not teach the step of setting a number of lattice points in the three-dimensional look-up table according to a number of bits of the image data.

Kimura teaches on Column 4, Lines 6-12 and Column 4, Lines 38-51 and Column 9, Lines 45-52 and Column 10, Lines 1-2 and on Column 3, lines 28-62 that it is advantageous when using three-dimensional look-up table that perform color and tone correction to reduce the bit length of the look-up table in order to reduce memory size. Therefore, Kimura teaches setting the number of lattice points in the three-dimensional look-up table according to the number of bits of the image data

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to reduce the bit length of the look-up table in Nishigaki et al according to the number of bits of the image data as taught by Kimura in order to reduce memory size.

21: In regards to Claim 12, Nishigaki et al in view of Oku et al teaches the use of an image processing apparatus that performs tone and color correction by using a three-dimensional look-up table. However, Nishigaki et al does not teach the step of setting a number of lattice points in the three-dimensional look-up table according to a number of bits of the image data.

Kimura teaches on Column 4, Lines 6-12 and Column 4, Lines 38-51 and Column 9, Lines 45-52 and Column 10, Lines 1-2 and on Column 3, lines 28-62 that it is advantageous

when using three-dimensional look-up table that perform color and tone correction to reduce the bit length of the look-up table in order to reduce memory size. Therefore, Kimura teaches setting the number of lattice points in the three-dimensional look-up table according to the number of bits of the image data

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to reduce the bit length of the look-up table in Nishigaki et al according to the number of bits of the image data as taught by Kimura in order to reduce memory size.

22: In regards to Claim 18, Claim 18 is rejected for reasons discussed related to Claim 6, since Claim 6 is substantively equivalent to Claim 18.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. USPN 6,717,700 Sanderson et al teaches the use of a image processing system that uses look up tables to perform tone conversion processing; USPN 5,883,698 Kimura teaches the use of a image processing system that uses look up tables to perform tone conversion processing; USPN 5,917,578 Nakamura teaches the use of a image processing system that uses look up tables to perform tone conversion processing; USPN 6,184,915 Atsumi et al teaches the use of a image processing system that uses look up tables to perform tone conversion processing.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M. Hannett whose telephone number is 571-272-7309. The examiner can normally be reached on 8:00 am to 5:00 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on 571-272-7308. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James M. Hannett
Examiner
Art Unit 2612

JMH
June 13, 2005

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SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600